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OCT 30 1987

Site: Atlantic
ID #: 180239954308
Break: 6.2
Other: E+E
10-30-87

ecology and environment, inc.

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International Specialists in the Environment

MEMORANDUM

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TECH SECTION

TO: Paul Doherty, RPO
THRU: John Caolie, FITOM
FROM: Philip Dula, E&E/FIT
DATE: October 30, 1987

SUBJECT: Trip Report for the Site Investigation of the Altantic Public Water Supply Atlantic, Iowa
TDD #F-07-8701-15 PAN #FIA0194SA
Site #Z34 Project #001
Superfund Contact: Peter Culver

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INTRODUCTION

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SUPERFUND RECORDS
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The U.S. Environmental Protection Agency (EPA) tasked the Ecology and Environment, Inc. Field Investigation Team (E&E/FIT), under Technical Directive Document (TDD) #F-07-8701-15, to conduct a soil-gas survey of the Atlantic, Iowa, Public Water Supply (Figure 1). The soil-gas survey was designed to delineate the source(s) of tetrachloroethene (PCE) detected in six of Atlantic's 11 public water wells during a routine sampling conducted by the Iowa Department of Natural Resources in 1982, and to define the geographic parameters of the PCE plume.

FIELD ACTIVITIES

Field activities for the Atlantic soil-gas survey were conducted the week of August 23 through 28, 1987, by the following E&E/FIT personnel:

- Philip Dula - Geologist - Team Leader
- Bill Kwoka - Chemist - Site Safety Officer
- Anne Melia - Chemist
- Bob Wiggans - Driller
- Kevin Hugill - Driller

Also in attendance were representatives of the Atlantic Municipal Utilities (AMU) and the Iowa Department of Natural Resources (IDNR):

- Richard Stevens - AMU Superintendent
- William Hoeck - AMU Manager - Water Works
- Kern Miller - AMU Engineer
- Jean Carleton - IDNR Environmental Engineer

Field activities were conducted as outlined in the work plan submitted September 25, 1987, under TDD #F-07-8701-15 with the exception of slight modifications to the soil-gas sampling grid. These modifications are discussed below.

SOIL-GAS SAMPLING EFFORT

A sampling grid consisting of 75 points with a spacing interval of 200 feet was initially laid out over the study area. Initial soil-gas sampling efforts were concentrated at the former Iowa Department of Transportation (IDOT) Lab/former dry cleaning facility location, a suspected source of the tetrachloroethene (PCE) detected in the Atlantic Public Water Supply (APWS). Soil-gas sampling proceeded from this location, north-northwest in the direction of ground water flow toward wells #2, #3, #4, and #7. Two other possible contaminant sources were sampled in the study area as well; the former bowling pin factory site and the former cooling pond location of the AMU (Figure 2).

Sampling locations were deleted or added as warranted by the field data results obtained as the soil-gas sampling progressed through the study area. As the areal extent of the plume was determined, perimeter soil-gas locations beyond the plume boundary were not pursued. Sampling points also were reduced when the E&E/FIT elected to change the sample spacing from 200 feet to 400 feet between probe locations through the Sycamore Village Trailer Park and adjacent residential areas. Additional soil-gas sampling locations were added as in-fill sampling points at the former IDOT Lab site and the site presently occupied by a Hardee's Restaurant (Figure 2). Soil-gas samples were taken at a depth of 5 to 6 feet. A final sampling grid of 81 points was laid out; of these, 55 points were sampled. Figure 2 illustrates the sampling plan and points sampled in this investigation.

Preliminary soil-gas survey results, shown on Table 1, indicate that tetrachloroethene (PCE) is originating from a point source located approximately 50 feet north of the Hardee's Restaurant. Soil-gas sample points #5 and #77 had the highest concentrations of PCE with respective values of 119 ppb and 76.90 ppb. This area is also 75 to 100 feet east of the former IDOT Lab/dry cleaning facility location where PCE was detected at 11.21 ppb at sample location #1 and 35.60 ppb at sample location #2.

It should be noted that the soil-gas field screening data acquired indicates general trends. Certain method modifications in the analytical field methods have been made that reduce the level of confidence associated with the results.

SOIL SAMPLES

Three soil samples were collected in the "hot spot" areas and given the sample activity series number IK994. The sample numbers and requested analytical services are listed in Table 2.

Soil sample IK944001 was collected with a power auger to a depth of 6 feet. The sample was thoroughly mixed in an aluminum pan and placed in appropriately designated containers for the requested analytical tests. Sample IK944001 was collected on the site of the former IDOT Lab (Figure 2) at soil-gas sample location #1.

Soil sample IK944002 was collected with a hand auger to a depth of 3.5 feet and consisted of two aliquots spaced 5 feet apart. The sample was thoroughly mixed in an aluminum pan and placed in appropriately designated containers. Sample IK944002 was collected at soil-gas sample location #5 approximately 50 feet north of the northwest corner of the Hardee's Restaurant (Figure 2).

Soil sample IK944003 was collected with a hand auger to a depth of 4 feet and consisted of 5 aliquots spaced 3 feet apart. The sample was thoroughly mixed in an aluminum pan and placed in the appropriately designated containers. Sample IK944003 was collected at soil-gas sample location #77 approximately 50 feet north of the northeast corner of the Hardee's Restaurant (Figure 2).

All samples were labeled and stored in the following containers:

Volatile organics	2 40-ml vials
Base/neutral/acid compounds	1 8-oz. glass jar
Pesticides	1 8-oz. glass jar

All samples were delivered to the Region VII EPA lab on Monday, August 30, 1987, by E&E/FIT members Philip Dula and Bill Kwoka.

SITE SAFETY AND DECONTAMINATION

Field activities were conducted in Level D personal protection. Non-expendable field equipment was decontaminated after each sample was collected. Rubber gloves, Tyvek suits, and other expendables were double bagged and delivered to the Region VII EPA Lab for proper disposal.

Field sampling activities were conducted in adverse weather conditions. An average of 1.5 inches of rainfall per day fell on four of the five project field work days. The average maximum temperature for the week of August 29, 1987, was 65° F.

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SUMMARY

The soil-gas survey conducted at the Atlantic Public Water Supply, Atlantic, Iowa, was conducted the week of August 24 through 28, 1987. Fifty-five soil-gas samples and three soils samples were collected. Field analytical data obtained in the soil-gas investigation was of good quality. Field data identified the source of PCE contamination as the former IDOT lab site and delineated the areal extent of the PCE plume. A final report outlining the findings of the Atlantic Public Water Supply site investigation will be submitted when the EPA data transmittal is received by the E&E/FIT.

Attachments: Figures 1 and 2
 Tables 1 and 2

PD/tlh

Table 1
Preliminary Soil-Gas Results
Atlantic, Iowa, Public Water Supply
August 1987

Sample Number	Results in ppb	Sample Number	Results in ppb
1	11.21	41	2.80
2	35.60	42	NST
3	0.03	43	0
4	0.39*	44	2.20
4A	0.70*	45	NST
5	119.0	46	1.20
6	NST	47	NST
7	0.30	48	NST
8	NST	49	0
9	NST	50	NST
10	NST	51	0
11	0	52	NST
12	0	53	0.50*
13	0	54	0
14	0	55	NST
15	0	56	0
16	0	57	NST
17	1.20	58	2.70
18	NST	59	1.20
19	0	60	0
20	6.20	61	0.80
21	5.30	62	2.70
22	NST	63	3.80
23	0.20	64	1.30
24	NST	65	2.90
25	0.10*	66	NST
26	0.10	67	0
27	NST	68	0.40
28	1.30	69	0.50
29	NST	70	4.30
30	0.50	71	NST
31	NST	72	0
32	2.10	73	02.0
33	NST	74	0
34	NST	75	NST
35	0	76	NST
36	0	77	76.9
37	0	78	3.60
38	0	79	0
39	NST	80	0.46
40	NST		

ppb = parts per billion

NST = No sample taken

* = Full vacuum release was not established in taking sample. This was due to high clay content in soil. Concentrations expected to be higher than field measurements indicate.

Table 2
Soil Sample Information
Atlantic Public Water Supply
Atlantic, Iowa
August 1987

Sample	Sample Type	Date Collected	Location	Requested Analytical Services	Depth of Sample	Number of Aliquots	Date Submitted to EPA Lab
IK944001	Soil	8-24-87	Soil-gas sample location #1, 75 ft. NE of former IDOT Lab site.	Pesticides BNA VOA	0-6 feet	1	8-30-87
IK944002	Soil	8-27-87	Soil-gas sample location #5, 50 ft. north of the Hardee's Restaurant's NW corner	Pesticides BNA VOA	0-3.5 feet	2	8-30-87
IK944003	Soil	8-28-87	Soil-gas sample location #77, 50 ft. north of the Hardee's Restaurant's NE corner	Pesticides BNA VOA	0-4 feet	5	8-30-87

BNA = Base/neutral acid compounds

VOA = Volatile organic compounds

Note: See Figure 2 for sample locations.

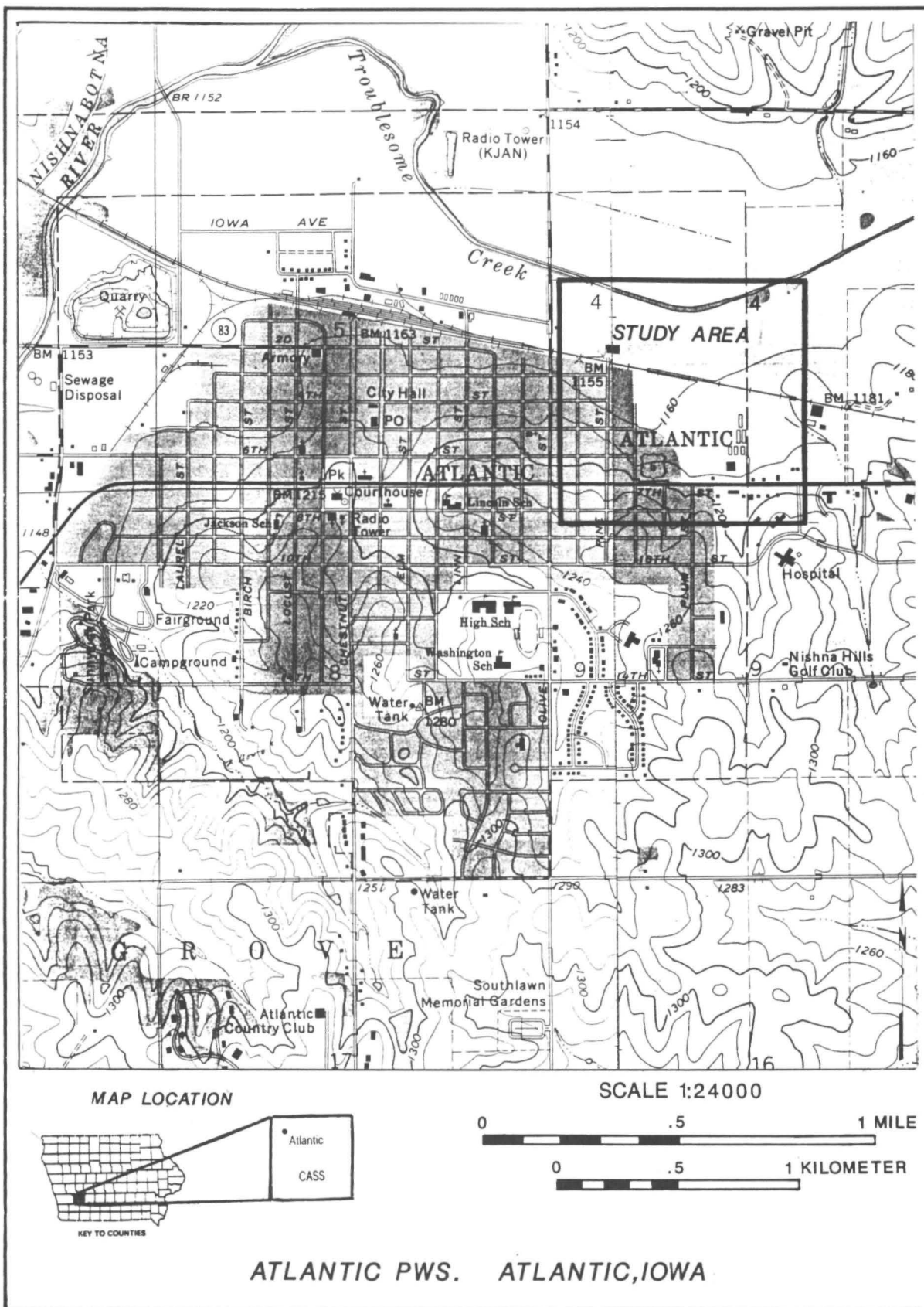
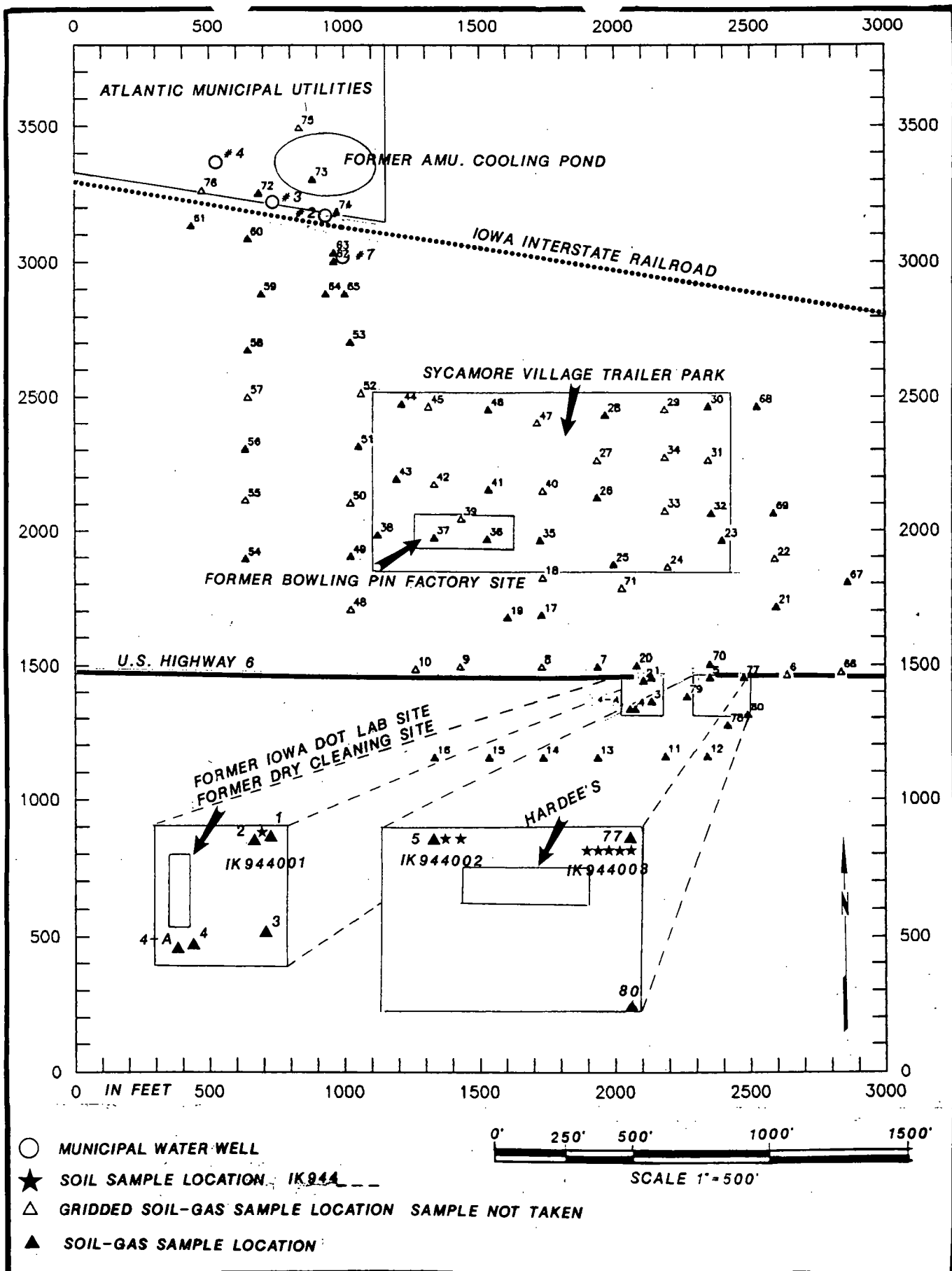


FIGURE 1: SITE LOCATION



EPA SITE # 1A0194
ATLANTIC PWS: ATLANTIC, IOWA

ECOLOGY & ENVIRONMENT, INC. FIT 10/87
DRAWN BY P.C. DULA 10/87

FIGURE 2: SOIL-GAS SAMPLE AND SOIL SAMPLE LOCATIONS